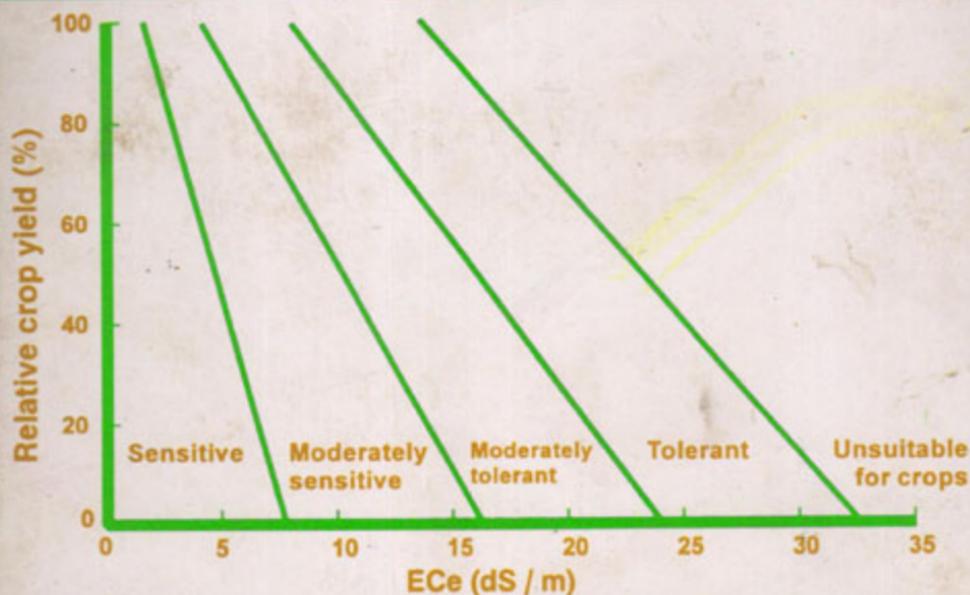


# YIELD – SALINITY RELATIONSHIP



**M. K. GHADOLIYA**

# **Yield - Salinity Relationship**

**(A Case study of Chambal Command Area)**

**Dr. M. K. Ghadoliya**



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# PREFACE

Rajasthan is better known in the world for its Thar desert and arid climate. The economy of the State is predominantly agrarian and we can not afford the luxury of soil and water resources wastage. After independence like in other states of the country, Rajasthan has also experienced the pressure of population. It was really a challenge to fulfil the growing food requirement. Thanks to our planners who rightly recognised the development priorities of the State and huge investments, were made in power and irrigation projects. We have been able to create irrigation potential in 1.74 million hectare by way of major and medium irrigation projects. Indira Gandhi Nahar Pariyojana, Chambal Project, Mahi Project are some of the famous projects of the State. These projects, have no doubt, enhanced the irrigation potential, but unfortunately, has also initiated the process of secondary salinization and/ or alkalinization.

The gains made by irrigated agriculture are threatened by waterlogging and soil salinity. In the Chambal project these adverse effects were recognised after the pilot studies undertaken by FAO and UNDP. Basically soil salinity and waterlogging are treated as drainage engineering or soil science problems. But these problems can also be looked at economic problems in so far they affect the productivity and farm income besides other negative effects. An increase in the salt content in the soil tends to adversely affect the yield rate of different crops, a large area goes out of cultivation and farmers are put to immense economic hardships. The characteristics of soils and the nature of salts and accumulation processes differ from one region to other. For this reason, methods of improving and managing these lands will be highly area specific. No serious effort was made in our country to evolve the area specific yield rate. Researchers and Scientists were therefore obliged to use

the estimates made by foreign experts for their countries irrespective of the relevance of such estimates for our country.

Sub-Surface drainage has proven to be an effective means to reclaim and control saline and waterlogged lands. The Rajasthan Agricultural Drainage Research Project (RAJAD) aims at the transfer of technology to improve upon the degraded soils and bring these soils again under cultivation by installing horizontal subsurface drainage. The project which was started in 1992 has been able to provide subsurface drainage in about 10,000 ha and another six to seven thousand ha area is expected to be covered shortly. Research was an inbuilt component of the project so that the reliable data may be available ready hand. The present study was awarded as a short duration research study to generate area specific data. The study is based on the data made available by RAJAD from various research test sites. Required primary data were also collected wherever necessary.

The plan of the book is as under : First chapter gives an Introduction to the problem under investigation. Second chapter provides a brief introduction of the RAJAD project. Third chapter describes the yield salinity relationship. The fourth chapter deals with the methodology adopted for the study.

The Profile of the Sample Households has been presented in the fifth chapter. Yield analysis of major crops by salinity and the Analysis of data have been dealt in the Sixth and the Seventh chapter respectively. Chapter Eight presents summary findings and the Conclusion. Lastly , in Chapter nine the major policy implications emerging from the study have been presented besides identifying further areas of research.

January 1, 1999

M.K.GHADOLIYA

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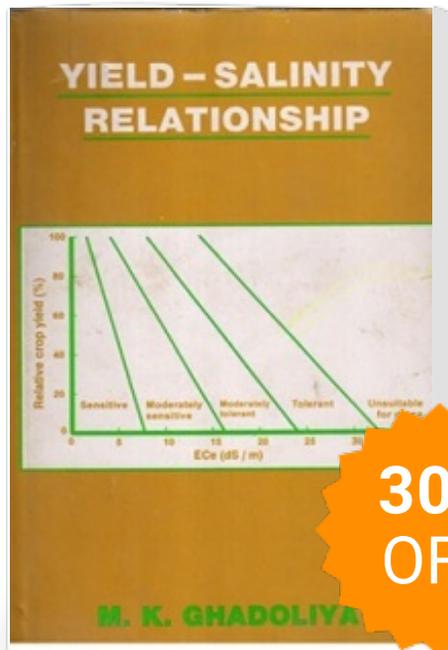
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- All the Authors whom I quoted in the book.
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- My wife Sneh Lata, son Vaibhav and daughter Vibhuti who shared my pleasures and pains during this study.

### EXECUTIVE SUMMARY

- The percentage of fallow land in *Kharif* was 15.52 where as in *Rabi* the percentage was only 3.81.
- The cropping intensity was quite high at 188.29 The higher cropping intensity means improved resource utilisation after SSD installation.
- The labour force data show a higher ratio of male workers than female workers in the area.
- The average family size of the sample households was 4.95. The literacy percentage was 57.6 and the percentage of Scheduled Castes and Scheduled Tribes (SC,ST) was 62.4.
- The sample farmers were very much hopeful about the beneficiary effects of SSD installation. Nearly 57 percent of the respondents reported to have experienced an increase in the crop yield after installation of SSD pipes , 38 per cent experienced no change and only 5 per cent respondents reported to have obtained lesser yield compared to the previous year's yield.
- SSD affected crop yield even in the short run and farmers have experienced an increase in the produc-

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